

International Preliminary Examination Report
(PCT/IPEA/409) Box No.5

2. Cited References and Explanation

Cited reference 1:

JP 11-286971 A (SHIN CATERPILLAR MITSUBISHI LTD)
October 19, 1999, all sentences, all drawings
non family

Cited reference 2:

JP 2002-371594 A (KOMATSU LTD)
December 26, 2002, all sentences, all drawings
& US 2003-085995 A

Cited reference 3:

JP 2002-3019513 A (KOMATSU LTD)
October 15, 2002, paragraph[0018]
& US 2002-154003 A
& US 2002-101334 A

Cited reference 4:

JP 2002-294762 A (KOBELCO CONSTRUCTION MACHINERY LTD)
October 9, 2002, paragraph[0007], [0023]-[0025]
non family

Cited reference 5:

JP 05-156665 A (KOMATSU)

June 22, 1993, paragraph[0021]-[0023],
non family

Cited reference 6:

JP 2002-021121 A (SHIN CATERPILLAR MITSUBISHI LTD)

January 23, 2002, paragraph[0023]-[0029]
non family

Cited reference 7:

JP 11-217853 A (KOMATSU LTD)

August 10, 1999, paragraph[0006]-[0011]
non family

Cited reference 8:

JP 64-059380 A (NIPPON ATOM IND GROUP CO LTD & TOSHIBA
CORP)

March 7, 1989, page 5, upper left, line 13-upper light,
line 7,
non family

Cited reference 9:

JP 2001-320624 A (CANON INC)

November 16, 2001, all sentences, all drawings,
non family

The invention according to claim 1 lacks inventive step over Cited Document 1 (see, paragraphs [0030] to [0036]) as cited in the International Search Report or Cited Document 2 (see, paragraph [0019] and Fig. 9) as cited in the International Search Report, Cited Document 7 (see, paragraphs [0006] to [0008] and [0011]) as cited in the International Search Report and Cited Document 9 as newly cited in the present report. It is considered that one skilled in the art could have easily made the invention in claim 1 by applying a camera control system and a camera control input means as disclosed in Cited Documents 7 and 9 to the camera section as disclosed in Cited Document 1 or 2.

The invention according to claim 2 lacks inventive step over Cited Document 2 (see, paragraph [0005]), Cited Document 7 as cited in the International Search Report and Cited Document 9. It is considered that one skilled in the art could have easily made the invention in claim 2 by applying the camera control system and the camera control input means as disclosed in Cited Documents 7 and 9 to the camera section as disclosed in Cited Document 2.

The invention according to claim 3 lacks inventive step over Cited Document 1 or 2, Cited Document 7, Cited Document 9 and Cited Document 3 (see, paragraph [0018]) as cited in the International Search Report. It is considered that one skilled in the art could have easily made the

invention in claim 3 by applying the camera control system and the camera control input means as disclosed in Cited Documents 7 and 9 to the camera section as disclosed in Cited Document 1 or 2, and further by employing an automatic switching means in response to an output from the alarm judging means as disclosed in Cited Document 3 in stead of the switching means as disclosed in Cited Document 1 or 2.

The invention according to claim 4 lacks inventive step over Cited Documents 1, 2, 3, 7 and 9. It is considered that one skilled in the art could have easily made the invention in claim 4 by combining the manual switching means as disclosed in Cited Document 1 or 2, the automatic switching means in response to the output from the operation member as disclosed in Cited Document 2, the automatic switching means in response to the output from the alarm judging means as disclosed in Cited Document 3 and the camera control system and the camera control input means as disclosed in Cited Documents 7 and 9.

The invention according to claim 5 lacks inventive step over Cited Document 1 or 2, Cited Document 7, Cited Document 9 and Cited Document 4 (see, paragraphs [0007] and [0023] to [0025]) as cited in the International Search Report. It is considered that one skilled in the art could have easily made the invention in claim 5 by employing a

plural cameras, each camera disclosed in Cited Document 1 or 2, by employing a configuration for switching an input display to the monitor section depending on the detection of the operation of each of the operation members as disclosed in Cited Document 5, and by employing the camera control system and the camera control input means as disclosed in Cited Documents 7 and 9.

The invention according to claim 6 lacks inventive step over Cited Document 1 or 2, Cited Document 7, Cited Document 9 and Cited Document 5 (see, paragraphs [0021] to [0023]) or Cited Document 6 (see, paragraphs [0023] to [0029]) as cited in the International Search Report. It would have been readily conceivable for one skilled in the art to register, in a memory, a detection of a combination of the operations of the operation members as disclosed in Cited document 5 or 6, and further to employ the camera control system and the camera control input means as disclosed in Cited Documents 7 and 9.

The inventions according to claims 7 to 9 lack inventive step over Cited Document 1 or 2, Cited Document 7 and Cited Document 9. It is considered that one skilled in the art could have easily made the invention in claims 7 to 9 by applying the camera control system and camera control input means as disclosed in Cited Documents 7 and 9 to the camera section as disclosed in Cited Document 1 or 2.

The invention according to claim 10 involves novelty and inventive step in view of Cited Documents 1 to 8 as cited in the International Search Report and Cited Document 9 as newly cited in the present report. Cited Documents 1 to 9 are silent on such a configuration that the monitor section displays an image data indicative of an alarm and the alarm section indicates a predetermined alarm pattern by means of blinking or sound when the monitor section is in a measurement value display mode, and the monitor section keeps the camera display mode and the alarm section indicates an alarm pattern by means of blinking or sound that is different from that of the alarm pattern of the measurement value display mode when the monitor section is in the camera display mode. It is considered that this is not a point a person skilled in the art could have readily conceived.

Amended documents (Article 34)

What is claimed is

Claim 1 (amended) An indicator control system with a camera section, which switches from a measurement value display mode for showing measurement data of an object to be monitored of a construction machine to a camera display mode of a camera section mounted on the construction machine and vice versa by using a switching means and displays a selected mode on a monitor section;

wherein the switching means consists of manual switching using an input means such as a predetermined switch provided near an operator's seat or on an indicator;

wherein the camera section is provided with a camera control unit which can control functions such as a photographing direction and a focus of a camera;

wherein the indicator is integrally provided with an control panel section including upper, lower, left, and right arrow mark keys as key input means; and

wherein the functions of the arrow mark keys are switched to a camera control mode to control the photographing direction and the focus of the camera through the camera control unit by means of the inputs of the arrow mark keys.

Claim 2 (amended) An indicator control system

with a camera section, which switches from a measurement value display mode for showing measurement data of an object to be monitored of a construction machine to a camera display mode of a camera section mounted on the construction machine and vice versa by using a switching means and displays a selected mode on a monitor section;

wherein the switching means consists of automatic switching effected by detection of a previously registered operation of a predetermined operation member;

wherein the camera section is provided with a camera control unit which can control functions such as a photographing direction and a focus of a camera;

wherein the indicator is integrally provided with an control panel section including upper, lower, left, and right arrow mark keys as key input means; and

wherein the functions of the arrow mark keys are switched to a camera control mode to control the photographing direction and the focus of the camera through the camera control unit by means of the inputs of the arrow mark keys.

Claim 3 (amended) An indicator control system with a camera section, which switches from a measurement value display mode for showing measurement data of an object to be monitored of a construction machine to a camera display mode of a camera section mounted on the construction machine and vice versa by using a switching

means and displays a selected mode on a monitor section;

wherein the switching means consists of a switching means that performs switching automatically when an indicator alarm judging means judges that display of an alarm screen is necessary;

wherein the camera section is provided with a camera control unit which can control functions such as a photographing direction and a focus of a camera; and

wherein the indicator is integrally provided with an control panel section including upper, lower, left, and right arrow mark keys as key input means; and

wherein the functions of the arrow mark keys are switched to a camera control mode to control the photographing direction and the focus of the camera through the camera control unit by means of the inputs of the arrow mark keys.

Claim 4 (amended) An indicator control system with a camera section, which switches from a measurement value display mode for showing measurement data of an object to be monitored of a construction machine to a camera display mode of a camera section mounted on the construction machine and vice versa by using a switching means and displays a selected mode on a monitor section;

wherein the switching means consists of manual switching using an input means such as a predetermined switch provided near an operator's seat or on an indicator,

automatic switching effected by detection of a previously registered operation of a predetermined operation member, and automatic switching effected when an indicator alarm judging means judges that display of an alarm screen is necessary;

wherein the camera section is provided with a camera control unit which can control the functions such as a photographing direction or a focus of a camera; and

wherein the indicator is provided with a camera control input means for sending a control signal to the camera control unit.

Claim 5 The indicator control system with a camera section according to any one of claims 1 to 4, characterized in that

the camera section can be attached to a desired position of the construction machine;

when the camera section is arranged to monitor a rear of the construction machine, a current display mode on the monitor section is switched by detection of operation of a running operation member;

when the camera section is arranged to monitor a side of the construction machine, a current display mode on the monitor section is switched by detection of operation of a swirl operation member; and

when the camera section is arranged to monitor a front of the construction machine, a current display mode on the monitor section is switched by detection of

operation of a operation member for boom, arm, or bucket.

Claim 6 The indicator control system with a camera section according to any one of claims 1 to 4, characterized in that detection of a kind of the operation member serving as the switching means and a combination of operations can be changeably registered in memory.

Claim 7 The indicator control system with a camera section according to any one of claims 1 to 4, characterized in that

the camera section is provided with a camera control unit which changes a camera posture such as a photographing direction of the camera section and controls a focusing mechanism for a zoom lens of a camera; and

the indicator is provided with a camera control input means for sending a control signal to the camera control unit.

Claim 8 The indicator control system with a camera section according to claim 7, characterized in that the camera control input means consists of manual input using an input means such as a predetermined switch provided on the indicator.

Claim 9 The indicator control system with a camera section according to claim 7, characterized in that

the camera control input means consists of automatic input effected by detection of a previously registered operation of a predetermined operation member carried out by the whole or a part of the camera control input means.

Claim 10 (amended) An indicator control system with a camera section according to claim 1, 2, 3 or 4 comprising:

an indicator for selectively switching, by an input switching means, from a measurement value display mode for showing measurement data of an object to be monitored of the construction machine to a camera display mode of a camera section mounted on the construction machine and vice versa and for displaying a selected mode on a monitor section;

an alarm section for generating an alarm, which is provided at a place different from the monitor section on the indicator;

an alarm judging means for judging whether or not measurement data of the object to be monitored corresponds to a predetermined alarm standard; and

an alarm control means for generating an alarm, in response to the display mode selected by the input switching means, activating the alarm section when the alarm judging means judges that the alarm is necessary;

wherein the alarm control means preliminarily sets, for the object to be monitored which it is judged an alarm

is necessary for, different alarm patterns between the measurement value display mode and the camera display mode;

wherein the monitor section displays an image data indicative of an alarm and the alarm section displays a predetermined alarm pattern by means of blinking or sound when the monitor section is in the measurement value display mode; and

wherein the monitor section keeps a camera display mode and the alarm section displays an alarm pattern by means of blinking or sound which is different from that of the alarm pattern displayed in the measurement value display mode when the monitor section is in the camera display mode.